These capsules prepared thus, were used in 12″ × 16″ cabinet drawers, two to the drawer. They held down the pests in a very much neglected and crowded cabinet for nearly a year until I found time to work over the material. In pinning the capsules into the drawers I at first thought it necessary to pin them into the sides so as to keep them upright, but later I pinned them into the bottom in a slanting position with good results. By inserting a stout insect pin obliquely to the vertical axis of the capsule (see Fig. 2), it may be pinned in the bottom of the drawer and there is no chance of the creosote running out. This is a fault that I anticipated but it did not

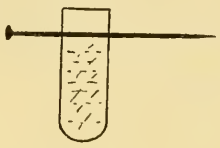

FIG. 1.

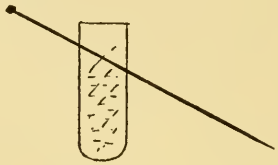

FIG. 2.

occur, the cotton absorbing all the creosote. The capsules are small, not very noticeable and maintain a strong odor of the creosote in the cabinet. The drawers of the cabinet were quite tight, however, and were not opened a half dozen times in ten months. I believe that the capsules would need refilling about once in every six months where the drawers were frequently opened.

It is better to use a small amount of cotton and not to pack it into the capsule. Do not use too much creosote either. Capsules in which the cotton is loose are much easier to refill. When capsules are just filled, pin them in an old box set up on end and let them remain a day, so that any creosote which may have run over on the outside will dry before putting capsules into the cabinet.

THE NOTONECTID GENUS BUENOA KIRKALDY.

BY J. R. DE LA TORRE BUENO,

WHITE PLAINS, N. Y.

These notes by no means aim at exhaustiveness. Much is necessarily omitted, but as their main purpose is to unravel the tangle into which have fallen the species of the genus occurring in the eastern United States, it does not appear to be appropriate to go minutely into details best treated of in a monographic revision of the genus.

I. In 1904, in "Über Notonectiden," * Kirkaldy separated the genus *Buenoa* from *Anisops*, to contain the American species, distinguishable from the Old World forms by having *two*-jointed anterior tarsi in the male. He lists 12 species as valid and reduces four to synonymy (not including one apparent misidentification). One species, however, is not listed but is mentioned in the text (p. 123), this being Fieber's *Anisops elegans*. The actual number of species is, however, much greater, as even counting synonyms, there are only seven continental *Buenoas* noted for North America, whereas I am familiar with five recognized species (excluding synonyms), and possess in addition some two or three undescribed forms from the west and south. The described species known to me are the following:

Buenoa albida Champion. Texas; Mexico.

B. carinata Champion. Mexico.

B. pallipes Fabricius. Mexico.

B. elegans Fieber. New Jersey.

B. platycnemis Fieber. New York; New Jersey; Illinois.

To which must be added: *B. margaritacea* Bueno hereafter mentioned.

II. When I first began to work on the waterbugs, I named some by the fatally easy method of exclusion. If you know all the species except one for a certain locality, why, the one that was new to you must necessarily be the remaining species. Or, if only one species was given for a specific region, why, the most abundant, and in fact, the only one taken must be it. Accordingly, when I found a common and abundant bug, I looked into Uhler's Check List, and there found only one species of *Anisops* given as occurring in the Atlantic States; namely, *Anisops platycnemis* Fieber. Now, whom should I follow, if not our most distinguished hemipterist? I promptly did so, to find myself in good (if misled) company. Later, possession of Fieber's "Rhynchotographieen" gave rise to many misgivings, even though Uhler's † semi-popular description in the Standard Natural History confirmed my first idea as to *A. platycnemis*. Subsequently I took, although in small numbers, another species, which but served to accentuate my previous doubts. Within the last year another local form turned up to increase the problem. However, once a sufficiency of material was in hand, the solution of the problem was simple enough.

* Wien. Ent. Zeit., XXIII, VII, 120 (Aug. 31, 1904).

† 1852, Abh. böhm. Ges. Wiss. (5), 7, pp. 1–64.

The *Buenoa* known to a generation of American entomologists as *Anisops platycnemis* was an undescribed species. The other two forms were readily identified by reference to Fieber (op. c., pp. 61–62), as the true *Buenoa platycnemis* and its close congener *B. elegans*. In passing it may be noted that these forms are so close that eventually a sufficiently long series may prove them cospecific, but the time is not yet for uniting them.

In *Standard Natural History** Uhler describes what he considers to be *Anisops platycnemis* Fieber, mainly by color characters (a very unreliable and misleading method in Hemiptera), but he makes the concrete statement that the length is "about $\frac{1}{4}$ of an inch to the tip of the wing covers." Now "about $\frac{1}{4}$ of an inch" may mean 6 mm. or 7 mm., each of which differs from $\frac{1}{4}$ inch by a small fraction, the former by only $\frac{1}{4}$ mm., or about $\frac{1}{100}$ in., and the latter by $\frac{3}{4}$ mm., equivalent to $\frac{3}{100}$ in., which are almost negligible quantities when considering an "about" dimension. At any rate, Fieber states that his *Anisops platycnemis* is "$2\frac{1}{2}$ lines" in length. A "line" being $\frac{1}{12}$ of an inch, we therefore have an insect $\frac{5}{24}$ of an inch in length, which differs but fractionally from 5 mm. (exactly .0085 in., or .21 mm.). This is one full millimeter shorter than Uhler's bug if we consider it just $\frac{1}{4}$ inch long, which in such a small insect is quite an appreciable measurement, and one serving to separate species. Now, in my "Notes on the Notonectidæ of the Vicinity of New York," † I referred to the species in question, of course, as *Anisops platycnemis*, as before noted, and described it, mainly structurally, if rather briefly (p. 236). There the dimensions are given as 6.7 mm. to 8.1 mm. long, and 2 to 2.3 mm. broad. The shorter length, of course, is "about $\frac{1}{4}$" inch, and, taken in connection with Uhler's color characters with which it agrees as closely as is to be expected in a character so variable as is color in waterbugs, it is evident that the two descriptions refer to the same insect. Again, Fieber distinctly says "Augen gross," which is certainly not the case with the *pseudo-platycnemis*, because in this form the eyes are not noticeably larger than the average in the genus, whilst in the genuine they are. The synonymy of this species therefore becomes:

Buenoa margaritacea Bueno, 1908, Journ. N. Y. Ent. Soc., XVI, 4, p. 238.

* 1882, Vol. II, p. 253.

† 1902, Journ. N. Y. Ent. Soc., X, 4, pp. 230–236.

= *Anisops platycnemis* Uhler, 1882, Stand. Nat. Hist., II, 250; Bueno, 1902, Journ. N. Y. Ent. Soc., X, 236; 1904, Kirkaldy, Wien. Ent. Zeit., XXIII, VII, 123; and very many other authors (but *not* Fieber).

The three descriptions cited above will enable anyone to identity this species with certainty.

The three species of *Buenoa* thus far found in the eastern United States are, therefore: *B. margaritacea* Bueno, *B. platycnemis* Fieber, *B. elegans* Fieber, and they may be separated by the following table:

1. (2) Large species, over 6 mm. long .....1. *margaritacea* Bueno.
2. (1) Smaller species, less than 6 mm. long.
3. (4) Eyes large and prominent; shape slender.....2. *platycnemis* Fieber.
4. (3) Eyes large but not prominent; shape more convex.....3. *elegans* Fieber.

Buenoa margaritacea appears to be very widely distributed in the north and I should not be surprised if it occurred in Canada, as in the United States, as far to the west as the longitude of Illinois, at least. Beyond that, other (and undescribed) forms are apt to occur. As to *B. platycynemis* and *B. elegans*, the latter I have seen only from New Jersey, but the former is found as far to the south as Washington, D. C., and west to Illinois.

In the south and west there are a number of forms very close to *Buenoa margaritacea* and naturally, some representatives of the Mexican fauna will be found in the border states, but as matters stand today, it would be hard work for anyone to pronounce positively on any of these forms in the absence of some definite work on the genus as a whole. A monographic revision of the genus therefore becomes imperative if we would have some fixed foundation on which to base our studies.

A DECADE OF NORTH AMERICAN FORMICIDÆ.*

By William Morton Wheeler,

Boston, Mass.

1. **Myrmica bradleyi, new species.**

Worker. — Length 4–7 mm.

Allied to *M. rubida* Latreille and *M. mutica* Emery. Head rectangular, as broad as long, with subparallel sides and straight posterior border. Mandibles moderately convex, pointed, with minutely denticulate blades. Clypeus somewhat

* Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 2.